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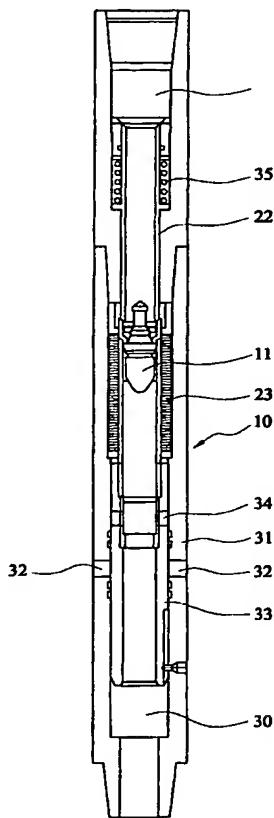
- (51) International Patent Classification⁷: E21B 21/10, 34/14
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- (71) Applicant and
- (72) Inventor: LEE, Paul, Bernard [CA/CA]; 15 Blue Ridge Place, Calgary, Alberta T3L 2NS (CA).
- (74) Agent: ORR, William, Mclean; Urquhart-Dykes & Lord, Tower House, Merrion Way, Leeds LS2 8PA (GB).

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[Continued on next page]

(54) Title: DART-OPERATED BIG BORE BY-PASS VALVE



(57) Abstract: A by-pass tool (10) has a large bore throughflow passage (30) when in an inactive drilling mode, and the capable of being activated, upon launching of an activation dart (11) from the surface, to an active mode in which drillstring fluids can be diverted to a by-pass port, comprising: a casing (31); a by-pass port (32) for diverting drillstring fluids when the tool is in the active mode; and an axially slid able member (33) within the casing (31) to slide between blocking and release positions with respect to the by-pass port (32), in which the member (33) is movable to the release position by the dart (11) to bring ports (34) in the member (33) into registry with the by-pass port (32), and in which the displacable member (33) can return to its blocking position and thereby cause the tool to revert to its inactive mode upon wireline retrieval of the dart.

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- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT PCT/ISA/220 15 MAR 2005

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference WMO/JAW/P200492	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/GB 03/03770	International filing date (day/month/year) 29/08/2003	(Earliest) Priority Date (day/month/year) 03/09/2002
Applicant LEE, Paul Bernard		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).
- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :
 - contained in the international application in written form.
 - filed together with the international application in computer readable form.
 - furnished subsequently to this Authority in written form.
 - furnished subsequently to this Authority in computer readable form.
 - the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
 - the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. Certain claims were found unsearchable (See Box I).

3. Unity of invention is lacking (see Box II).

4. With regard to the **title**,

- the text is approved as submitted by the applicant.
- the text has been established by this Authority to read as follows:

DART-OPERATED BIG BORE BY-PASS VALVE

5. With regard to the **abstract**,

- the text is approved as submitted by the applicant.
- the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

- as suggested by the applicant.
- because the applicant failed to suggest a figure.
- because this figure better characterizes the invention.

3 _____

None of the figures.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/03/03770

Box III TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)

A by-pass tool (10) has a large bore throughflow passage (30) when in an inactive drilling mode, and the capable of being activated, upon launching of an activation dart (11) from surface, to an active mode in which drillstring fluids can be diverted to a by-pass port, comprising: a casing (31); a by-pass port (32) for diverting fluids when in active mode; and an axially slidable member (33) within the casing (31) to slide between blocking and release positions with respect to the by-pass port (32), in which the member (33) is movable to the release position by the dart (11) to bring ports (34) in the member (33) into registry with the by-pass port (32), and in which the displacable member (33) can return to its blocking position and thereby cause the tool to revert to its inactive mode upon wireline retrieval of the dart.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GD/93/03770

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 E21B21/10 E21B34/14

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 E21B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3 989 114 A (TSCHIRKY JOHN E ET AL) 2 November 1976 (1976-11-02) column 3, line 27-60 -column 4, line 35; figures 1-6 ---	1,2,7
X	US 3 814 180 A (OLIVER D) 4 June 1974 (1974-06-04) column 3, line 34 -column 4, line 28; figures 1-3,5 column 4, line 67 -column 5, line 29 ---	1,2,7
X	GB 1 295 373 A (TURBODRILL INTERNATIONAL CORPORATION) 8 November 1972 (1972-11-08) page 2, column 2, line 102-111; figures 1-4 page 3, column 2, line 3-92 ---	1,2,7

 Further documents are listed in the continuation of box C. Patent family members are listed in annex.

° Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Date of the actual completion of the international search

11 February 2004

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20/02/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
 NL - 2280 HV Rijswijk
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
 Fax: (+31-70) 340-3016

Authorized officer

van Berlo, A

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GD/93/03770

C.(Continuation) DOCUMENTS CONSIDERED BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 99 22114 A (BAIRD JEFFREY D) 6 May 1999 (1999-05-06) figure 26 ---	1
A	WO 01 06086 A (CHURCHILL ANDREW PHILIP) 25 January 2001 (2001-01-25) page 21, line 5 -page 24, line 6; figures 4,5 -----	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/03/03770

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
US 3989114	A 02-11-1976	NONE		
US 3814180	A 04-06-1974	NONE		
GB 1295373	A 08-11-1972	FR	2071262 A5	17-09-1971
WO 9922114	A 06-05-1999	AU WO US	1195299 A 9922114 A1 6148664 A	17-05-1999 06-05-1999 21-11-2000
WO 0106086	A 25-01-2001	AU CA EP WO NO	6169800 A 2381360 A1 1198656 A1 0106086 A1 20020229 A	05-02-2001 25-01-2001 24-04-2002 25-01-2001 06-03-2002